

What is claimed is:

1. A heat transfer member for a reciprocating device, the heat transfer member comprising:

an internal heat transfer member mounted inside of a transition member; and

an external heat transfer member mounted outside of the transition member, said external heat transfer member comprising:

a base; and

a base blocking protrusion radially extending from the base and configured to contact the transition member.

2. The heat transfer member according to claim 1, wherein the base blocking protrusion is spaced axially inwardly from one end of the base And creates an axially extending channel between the transition member and the base, the channel configured to accept a brazing material therein.

3. The heat transfer member according to claim 1, wherein:

the reciprocating device is a cooler and comprises:

a sealing container;

a cylinder provided inside the sealing container and filled with coolant gas;

a cold finger tube provided at one end of the sealing container;

a displacer cylinder provided within the cold finger tube;

a displacer configured to divide an inside of the displacer cylinder into an expansion space and a compression space;

a piston configured to move together with the displacer within the cylinder, the piston and displacer configured to compress and expand the coolant gas; a linear motor unit configured to drive the piston; a regenerator configured to at least one of store and radiate thermal energy after absorbing thermal energy from the coolant gas; and the internal heat transfer member connects the cold finger tube and the sealing container.

4. The heat transfer member according to claim 1, wherein the external heat transfer member further comprises an insertion groove configured to accept an adaptor inserted therein; and

a groove blocking protrusion axially extending from the insertion groove and configured to contact the adaptor and create an axially extending channel between the adaptor and the base, the channel configured to accept a brazing material therein.

5. The heat transfer member according to claim 1, wherein the base comprises a stepped portion on an inner circumferential surface of the base that makes contact with the transition member, a surface of the stepped portion configured to accept a brazing material thereon.

6. The heat transfer member according to claim 1, wherein the base comprises a vent hole configured to connect an air pocket on an inside of the base to an area outside the base.

7. A heat transfer member for a reciprocating device, the heat transfer member

comprising:

an internal heat transfer member mounted inside a transition member; and  
an external heat transfer member mounted outside the transition member and

comprising:

an insertion groove configured to accept an adaptor ring inserted thereinto; and  
a groove blocking protrusion axially extending from a circumferential surface  
of the insertion groove and configured to contact the adaptor and create an axially  
extending channel between the adaptor and the base, the channel configured to accept  
a brazing material therein.

8. The heat transfer member according to claim 7, wherein the groove blocking  
protrusion is spaced axially inwardly from one end of the base.

9. The heat transfer member according to claim 7, wherein:

the reciprocating device is a cooler and comprises:

a sealing container;  
a cylinder provided within the sealing container and filled with a coolant gas;  
a cold finger tube provided at one end of the sealing container;  
a displacer cylinder provided within the cold finger tube;  
a displacer configured to divide an inside of the displacer cylinder into an  
expansion space and a compression space;  
a piston configured to move together with the displacer within the cylinder, the  
piston and displacer configured to compress and expand a coolant gas;

a linear motor configured to drive the piston;  
a regenerator configured to at least one of store and radiate thermal energy after absorbing thermal energy from the coolant gas; and  
the internal heat transfer member connects the cold finger tube and the sealing container.

10. The heat transfer member according to claim 7, wherein the external heat transfer member further comprises:

a base; and  
a base blocking protrusion radially extending from the base and configured to contact the transition member.

11. The heat transfer member according to claim 10, wherein the base blocking protrusion is spaced axially inwardly from one end of the base and creates an axially extending channel between the transition member and the base, the channel configured to accept a brazing material therein.

12. The heat transfer member according to claim 10, wherein the base comprises a stepped portion on an inner circumferential surface of the base that makes contact with the transition member, a surface of the stepped portion configured to accept a brazing material thereon.

13. The heat transfer member according to claim 7, wherein the external heat transfer member further comprises a vent hole configured such that air inside the air pocket formed between the external heat transfer member and the transition member is discharged

during a brazing process.

14. The heat transfer member according to claim 7, wherein the groove blocking protrusion has a flat upper surface and a smooth end surface.

15. A heat transfer member for a reciprocating device, the heat transfer member comprising:

an internal heat transfer member mounted inside of a transition member; and

an external heat transfer member mounted on the outside of the transition member and comprising:

a base;

an insertion groove configured to accept an adaptor ring inserted thereinto;

a first blocking protrusion formed on the insertion groove; and

a second blocking protrusion formed on a surface of the base that contacts the transition.

16. The heat transfer member according to claim 15, wherein at least one of the first and second blocking protrusions is spaced axially inwardly from one end of the base.

17. The heat transfer member according to claim 15, wherein:

the reciprocating device is a cooler and comprises:

a sealing container;

a cylinder provided within of the sealing container and filled with a coolant gas;

a cold finger tube provided at one end of the sealing container;

a displacer cylinder provided within of the cold finger tube;

a displacer configured to divide an inside of the displacer cylinder into an expansion space and a compression space;

a piston configured to move in combination with the displacer inside the cylinder, the piston and the displacer configured to compress and expand the coolant gas;

a linear motor unit configured to drive the piston;

a regenerator configured to at least one of store and radiate thermal energy after absorbing thermal energy from the coolant gas; and

the internal heat transfer member connects the cold finger tube and the sealing container.

18. The heat transfer member according to claim 15, wherein the base comprises a stepped portion on an inner circumference of the base at a region that contacts the transition member.

19. The heat transfer member according to claim 15, wherein the external heat transfer member comprises a vent hole configured such that air in an air pocket formed between the external heat transfer member and the transition member is discharged during a brazing process.